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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/091,508 10/30/98 CONNORS

J 68567/FALL

EXAMINER

IM52/0411

LEYDIG VOIT & MAYER
700 THIRTEENTH STREET N W
SUITE 300
WASHINGTON DC 20005

OCAMPO, M	
ART UNIT	PAPER NUMBER

1723
DATE MAILED:

14
04/11/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/091,508

Applicant(s)

CONNORS ET AL.

Examiner

Marianne S. Ocampo

Art Unit

1723

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 January 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- 15) ☒ Notice of References Cited (PTO-892)
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 18) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Reed et al. (U.S. 5,141,637) in view of Reed et al. (U.S. 4,839,048).

Reed et al. (637) disclose a separation element comprising two or more hollow pleated pack sections (10, 11) wherein each pack (10, 11) having first and second ends and an interior and including a porous medium (11), joiner caps (middle end caps 20, 30) attached to at least one end of each of the two or more pack sections (10), adjacent joiner caps (20, 30) being connected to coaxially secure the pack sections (10) and joiner caps into a hollow separation arrangement of sufficient/desired length, which could include at least 40 inches in length, and further comprising first and second end caps (top end cap 20, bottom end cap 30) attached to the hollow separation arrangement, as in figs. 1 & 8 - 9 and cols.3 - 11. However, Reed et al. fail to

disclose the interior diameter of the hollow arrangement being at least about two inches and the porous medium being of polymeric or glass fiber material, and the one of the first and second end caps comprising a seal having an outside diameter greater than the largest outside diameter of the hollow separation arrangement. It is known in the art of hollow pleated pack sections formed of porous medium of polymeric material and/or glass fiber material. Reed et al. (048) teach a hollow pleated pack having first and second ends and an interior and including a porous medium (216) formed of polymeric material, as in col. 5 and fig. 6. Reed et al. (048) teach the hollow pleated element or arrangement (215) further having first and second end caps (204, 221) wherein one of the end caps (204) comprises a seal (206) having an outside diameter greater than the largest outside diameter of the hollow separation arrangement (215), as also in fig. 6.

Although Reed et al. do not teach the interior diameter of each hollow pleated arrangement or element (201, 215), it is considered an obvious modification to change the interior diameter of a filter/separation element in order to accommodate as many like separation elements in a casing/housing as possible, depending upon the scale of the filtration process, as well as the size of the plant/filter equipment. In other words, smaller elements with smaller diameters are used in smaller filter housings used in smaller scale processes/applications. However, in large scale commercial applications, a larger filter housing is usually used and multiple or several filter/separation elements might be required within a housing or a filter casing to filter a certain amount/batch of fluid (claim 1). It is known in the art that polymeric materials as separation elements have desirable qualities which other types of elements do not have, such as corrosion resistance, and stabilities at high pressure and temperature conditions. It is considered obvious to

one of ordinary skill in the art at the time of the invention to modify the hollow pleated sections in the arrangement of Reed et al. (637) in lieu of those taught by Reed et al. (048), in order to provide an improved and alternative separation element/arrangement for used in filtering pressurized fluids.

3. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Reed et al. (U.S. 4,839,048).

Reed et al. (048) disclose a separation element (201) comprising a hollow pleated pack (215) having first and second ends and an interior (adjacent the core 220) and including a porous medium (216) of polymeric material, and first and second end caps (204, 221) being attached/connected to an end of the pack (215), wherein one of the end caps (204) includes a seal (206) having a larger outside diameter than the largest outside diameter of the hollow pleated pack (215, 216) and the other end cap (221), as in fig. 6. However, Reed et al. fail to disclose the hollow pleated pack being at least about 40 inches in length and having an interior diameter of at least about 2 inches (as in claim 2). It is considered an obvious optimization step to form a separation element comprising a hollow pleated pack of a length of at least about 40 inches, depending on the desired size of the filter housing and/or filtration cartridge by the user and amount of fluid to be filtered at one pass. In other words, for large-scale industrial applications where large filter housings with at least a longitudinal length of 40 inches or more are used, a filter/separation element of about at least 40 inches would be needed. Longer filter elements in

comparison to a series of filter elements connected together would be more desirable for a uniform flow conditions therethrough. In addition, the replacement and/or assembly/disassembly of a longer filtration element would be easier than a series of multiple filter elements. The interior diameter of each separation element is dependent also on the longitudinal length of the separation element, as well as the size of the filter housing into which the separation element would be placed into and amount of fluid/scale of the filtration process. Smaller interior diameters (those less than 2 inches) may be useful in microfiltration and other ultrafiltration (very small scale) processes. However, in larger filtration processes using larger sized filter housings, such as in industrial scale filtration processes, a longer and an interior diameter of at least about 2 inches may be desirable/optimal for those processes (claim 2).

4. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Connors, Jr (U.S. 5,435,915).

Connors, Jr. (915) discloses a separation element comprising a pleated pack (10, 11) including a porous medium (11) and a first end (top end near top end cap 20, 60), and an end cap (top end cap 20, 60) including a first segment (20) and a second segment (60) spaced from the first end of the pack (10), the end cap extendable from a first position in which the first and second segments (20, 60) are spaced a first distance from each other to a second position in which the first and second segments are spaced a second distance from each other, and the second distance being greater than the first distance, as in fig. 4 (first distance) and in fig. 3

(second distance). Although Connors, Jr. does not disclose the length of the pack being greater than about 40 inches and the interior diameter being greater than 2 inches, it is considered an obvious modification to change the length and interior diameters of the pack, depending upon the scale of the process. Longer elements with larger interior diameters, such as those greater than 40 inches in length and diameters of more than 2 inches, may be required in processing larger amounts of fluids especially for large scale commercial applications (claim 3).

5. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Connors, Jr (U.S. 5,435,915) in view of Reed et al. (048).

Connors, Jr. (915) discloses a separation element comprising a pleated pack (10, 11) including a porous medium (11) and a first end (top end near top end cap 20, 60), and an end cap (top end cap 20, 60) including a first segment (60) and a second segment (20) mounted to the first end of the pack (10). Connors, Jr. further discloses a sealing member (17) being coupled to at least one of the segments (20, 60) and the first segment (60) being slidably engaged to the second segment (20) such that the first segment (60) is movable between first and second positions, wherein in first position (shown in fig. 3) , the sealing member (17) is relaxed and in second position (in fig. 4), the sealing member (17) is compressed between the segments thereby energizing the seal. However, Connors, Jr. fails to disclose the seal having an outer diameter greater than the outer diameter of the second segment of the end cap. Reed et al. (048) disclose a separation element comprising a pleated pack including a porous medium (11) and a first end

and an end cap/second segment (204) being attached/mounted to an end of the pack (11), with a seal (206) having an outer diameter greater than the end cap/segment. It is considered obvious to one of ordinary skill in the art at the time of the invention to modify the second segment of the separation element of Connors, Jr., in lieu of the end cap of Reed et al. in order to provide an alternative sealing arrangement between the two segments of the end cap of Connors, Jr., as well as provide an alternative end cap design for the element.

Response to Amendments and Arguments

6. Applicants' arguments filed on 1-23-01 with respect to claims 1 - 4 have been considered but are moot in view of the new grounds of rejection. **This action is non-final.**

7. **Applicants' amendments or second/subsequent reply filed on 4-6-01 had been placed in the file, but the contents had not been entered** (I.e. the merits of the reply had not been treated) for the following reasons:

- a) According to the new rules under 37 U.S. C. 1.111 (a) (2), if a second or subsequent reply would place a significant burden to the examiner by addition of new claims or amendment of the specification that changes the scope of the claims or raises new matter and the examiner has devoted a significant amount of time to preparing an office action before receiving such a reply, then the entry of the reply/amendment would be denied.

In this particular instance, the entry of the second/subsequent reply filed on 4-6-01 is denied because it would place a significant burden on the examiner by the addition of the new claims 14 – 26, and the examiner had already devoted significant amount of time in preparing an office action to respond to the last amendments filed on 1-23-01.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. U.S. Patents 4,559,138 (Harms, II), 5,102,545 (Hoffmann) and 3,870,636 (Schettler), and E. P. Patent 487,831 (Reed et al.).

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marianne S. Ocampo, whose telephone number is (703) 305-1039. The examiner can normally be reached on Mondays to Fridays from 8:00 A.M. to 4:30 P.M..

10. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda Walker can be reached on (703) 308-0457. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-3599 for regular communications and (703) 872-9311 for After Final communications.

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11. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

M.S.O.
April 9, 2001


W. L. WALKER
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700